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(54) **OPTICAL RECORDING METHOD AND OPTICAL RECORDING MEDIUM**

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(List continued on next page.)

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369/59.2; 369/116

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(57) **ABSTRACT**

An optical recording method for recording mark length-modulated information on a recording medium by using a plurality of recording mark lengths. The optical recording method comprises the steps of:

when a time length of one recording mark is denoted nT (T is a reference clock period equal to or less than 25 ns, and n is a natural number equal to or more than 2),
(i) dividing the time length of the recording mark nT into

$\eta_1 T, \alpha_1 T, \beta_1 T, \alpha_2 T, \beta_2 T, \dots, \alpha_m T, \beta_m T, \eta_2 T$

in that order (m is a pulse division number; $\sum (\alpha_i + \beta_i) + \eta_1 + \eta_2 = n$; α_i ($1 \leq i \leq m$) is a real number > 0 ; β_i ($1 \leq i \leq m-1$) is a real number > 0 ; β_m is a real number ≥ 0 ; and η_1 is a real number of $-2 \leq \eta_1 \leq 2$ and η_2 is a real number of $-2 \leq \eta_2 \leq 2$);

radiating recording light with a recording power Pw_i in a time duration of $\alpha_i T$ ($1 \leq i \leq m$), and radiating recording light with a bias power Pb_i in a time duration of $\beta_i T$ ($1 \leq i \leq m$), the bias power being $Pb_i < Pw_i$ and $Pb_i < Pw_{i+1}$; and

(ii) changing $m, \alpha_i, \beta_i, \eta_1, \eta_2, Pw_i$ and Pb_i according to n of the time length nT of the recording mark; wherein the pulse division number m is 2 or more for the time duration of at least one recording mark and meets $n/m \geq 1.25$ for the time length of all the recording marks.

12 Claims, 27 Drawing Sheets

